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FLYER HEAD CAP FOR ROVINGS

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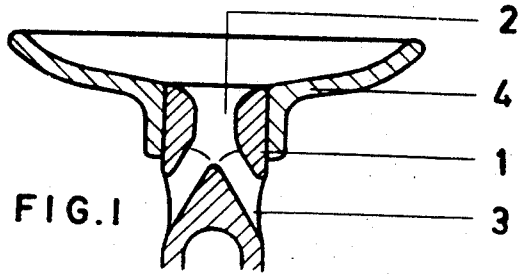


FIG. 1

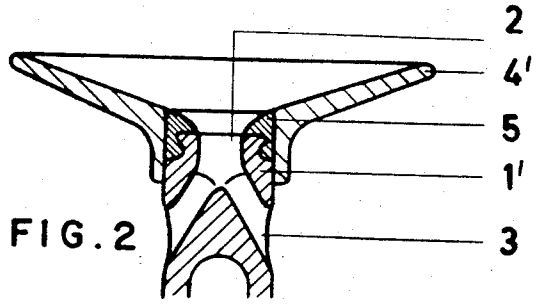


FIG. 2

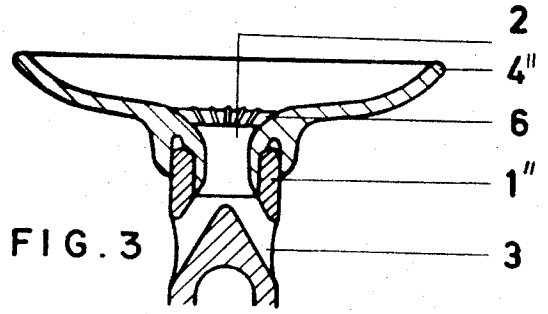


FIG. 3

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FLYER HEAD CAP FOR ROVINGS

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Int. Cl. D01h 7/26
U.S. Cl. 57—115 5 Claims

ABSTRACT OF THE DISCLOSURE

A flyer head for rovings is provided with a coaxially mounted plate-like cap the outer diameter of which is substantially greater than the diameter of the flyer head and which constitutes at least a portion of the upper surface of the inlet opening for the rovings.

This invention relates to a flyer head for rovings and refers more particularly to that part of a flyer which is used for guiding rovings coming from the drawing frame prior to their entry into the flyer arm.

To guide the roving the flyer head is provided with an inlet opening located coaxially to the rotating spinning system and two side outlet openings used selectively, depending upon the desired twist. The location at which the roving enters the flyer head is of importance from two different points of view. One of them pertains to the rotation which is being imparted to the roving. Due to its inclined direction at the time of its entry, the roving does not assume the full twist corresponding to the spindle rotations in the open stretch between the drawing frame and the flyer head. In order to increase the twist and thus to increase the firmness of the roving in that stretch and also to maintain the twist substantially the same at the front and rear spindle rows so as to avoid a difference in count, the inlet opening has been formed by an insert or cap, made, for example, from rubber or plastics, and provided upon the base of the fly or head. The shape of these caps or inserts, also called twist crowns, corresponds substantially to the basic shape of the flyer head, whereby the outer diameters of the insert and of the base were made approximately the same.

The second point of view concerns the case when the roving breaks during spinning. Such breaking can take place in the free piece of roving between the drawing frame and the flyer head where it can be supervised comparatively easily, for example, by means of a light screen. However, the breaking can take place under the flyer head and particularly in the location of the strongest pull tension of that part, namely, at the place where the roving leaves the pressing finger. In most cases the breaking of the roving under the flyer head will not be detected on time by the supervision of the free piece of roving. The amount of roving pushed subsequently by the drawing frame will not be pulled away any more but initially will be subjected to an increased rotation at the inlet and is then changed into a winding, so that the roving in its free stretch does not show an excessive sag which would operate the supervisory device. The winding formed at the inlet around the flyer head reaches finally a size which renders it unstable and liable to swing. This leads to the generally feared so-called "snowstorm" effect, since the collected amount of roving now comes within the range of quickly rotating wings, is torn by them and is whirled in all directions. The further result is that the machine has to stand still for long time periods and that there are

defects in the yarn produced by the flying pieces of roving which were spun upon the adjacent spindles.

Attempts have been made to discover the formation of windings as early as possible in order to be able to stop the machine before the "snowstorm" sets in. For that purpose again a light screen has been suggested which is effective in the range of flyer heads. It was found, however, that only a small percentage of "snowstorms" can be avoided with the prior art devices. This is caused primarily by the fact that the winding which is being formed can have very different shapes so that it reaches the supervision range either too late or not at all.

An object of the present invention is to shape the flyer head in such manner that the possibility of the formation of windings is diminished and that in case a winding is formed, its formation is such that a secure supervision is made possible.

Other objects of the present invention will become apparent in the course of the following specification.

In the attainment of the objectives of the present invention it was found desirable to provide a dish-like cap mounted coaxially upon the flyer head and having an outer diameter which is substantially greater than the diameter of the flyer head and which forms at least a part of the upper limiting surface of the inlet opening for the roving.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawing, showing by way of example, preferred embodiments of the inventive idea.

In the drawing:

FIGURE 1 is a section through a flyer head cap having a slightly concave inner surface;

FIGURE 2 is a section through a similar cap having a flat conical inner surface;

FIGURE 3 is a section through a flyer head cap serving at the same time as a twist head.

Similar parts are indicated by the same numerals throughout the figures.

FIG. 1 shows a flyer head **1** having an upper inlet opening **2** and two symmetrically located side outlet openings **3** for the roving. The plate-like cap **4** constituting the subject of the present invention has an upper surface which is slightly bent toward the roving which is not shown, and has a smooth connection to the portion of the inlet opening formed by the body of the flyer head. The inclination and the curvature of this limiting surface and the diameter of the plate-like cap **4** are such that the cap does not come in contact with the roving during normal operation.

If, however, the roving breaks and has the tendency to form a winding, then the plate-like cap **4** will prevent the roving from winding itself around the flyer head and thereby produce, for example, a flat coil. In many instances no coil at all will be formed and the breaking will be discovered by the supervision device located at the outlet of the drawing frame. If a coil is formed it can grow only upwardly and will be positively determined there by a light screen, for example. The plate-like cap then serves at the same time as a support for the coil which as the result will become more stable, so that the machine can be stopped before the coil is separated from the flyer head.

FIG. 2 shows a somewhat different construction of a plate-like cap **4'** the upper limiting surface of which constitutes a flat upwardly widening frusto-conical surface. The flyer head **1'** can be also provided with a twisting device **5** which is engaged by the roving while the cap is of such size that normally the roving does not touch it.

FIG. 3 illustrates a construction wherein a plate-like cap **4''** constitutes at the same time the twisting device.

For that purpose the cap is provided, for example, at its inlet with a number of ribs 6 which frictionally engage the roving and thus impart twists thereto. The entire cap can be made of a plastic material and can be glued or pressed upon the body of the flyer head.

The described constructions of the flyer head constitute an extremely simple and effective solution of the above stated problems. They have also the advantage that they can be easily applied to existing machines and that they do not interfere with the servicing, namely, the threading. The present invention results in a most effective influencing of coil formation and thus contributes greatly to the methods of supervising flyers.

Instead of having a curved or conical shape the plate-like cap of the present invention can have a flat upper limiting surface so that it will consist essentially of a thin disc. The described effect remains substantially the same in the possible different variations in the shape of the flyer head cap of the present invention.

What is claimed is:

1. In combination with a flyer head having an inlet opening for a roving, a wide cap designed to diminish the formation of windings above the flyer head having an upper plate-like surface with a central opening directly engaging said inlet opening whereby said upper plate-like surface constitutes a direct continuation of the upper surface of the flyer head, said surface having an outer diameter which is a multiple of that of said inlet opening, said cap being plate-like in shape and being coaxially mounted upon said flyer head.

2. A cap in accordance with claim 1, wherein said surface is an upper limiting surface having a slightly concave curvature.

3. A cap in accordance with claim 1, wherein said surface is an upper limiting surface having the shape of an outwardly extending frusto-conical surface.

4. A cap in accordance with claim 1, wherein said surface is a flat upper limiting surface.

5. A cap in accordance with claim 1, comprising means engaging and twisting the roving and located in the central portion of the cap.

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